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ROYAL GARDENS, KEW.

BULLETIN

OF

MISCELLANEOUS INFORMATION.

No. 17.] MAY. [1888.

XL.—IPECACUANHA.

(*Cephaelis Ipecacuanha*, Rich.)

The ipecacuanha plant is a half-shrubby perennial not more than 18 inches high, which grows in abundance under the shade of trees in the hot, moist forests of many parts of Brazil. It was cultivated in this country at Edinburgh at least as early as 1832, and flowered at Glasgow in 1843.

The part used in medicine is the dried roots. These are collected more or less all the year round, but less during the rainy season from the difficulty of drying them properly. As stated by Bentley and Trimen (Medicinal Plants, vol. ii., 145), "From its stimulant action "on the alimentary canal ipecacuanha has always been in repute as a "remedy in chronic dysentery and diarrhœa, and in large doses of 30 "grains and upwards it is regarded in India as almost a specific in "acute dysentery."

For the last quarter of a century a persistent attempt has been made to introduce the ipecacuanha plant into India. This has met with the

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1888.

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most varied fortune, and has at last been crowned with success in the Straits Settlements. It is evident that the problem presented was one of no ordinary difficulty. The ipecacuanha plant presents very little elasticity of constitution, and refuses to flourish, except under a very limited range of physical conditions. The result of experiment has, however, been to show that it can be propagated by extraordinary facility, whether by ordinary cuttings, by cuttings of the roots, or even by merely pegging a leaf to the earth.

The history of the introduction of the ipecacuanha plant into India may be commenced with the following extracts from a letter addressed by Dr. Anderson, Superintendent of the Botanical Gardens, Calcutta, to the Under Secretary to the Government of Bengal, dated December 8th, 1868:—

"My attention had been directed to the introduction of the ipeca-
" cuanha plant into the Botanical Gardens of Calcutta for some years,
" but I was unable to procure any plants until April 1866, when one
" plant was sent to me by the overland route by Dr. Hooker, Director
" of the Royal Gardens, Kew.* I am indebted to the care bestowed
" on the plant by Dr. George King, Assistant Surgeon of the Bengal
" Medical Service, during the voyage to India for its having arrived in
" Calcutta in good health." * * *

"The plant of ipecacuanha originally introduced into the Botanical
" Gardens in 1866 is dead; but I now possess nine plants in this
" garden, which have been artificially propagated from the original
" one, besides five growing at the cinchona plantations at Darjeeling,
" to which place I sent one last year. I have thus 14 plants of
" ipecacuanha."

On March 23, 1869, the India Office wrote to Kew requesting that some plants of ipecacuanha may be procured and sent with care to Bombay.

Sir Joseph Hooker replied, March 19: "I can place two healthy
" plants at the disposal of his Excellency the Governor in Council at
" Bombay, and I hope soon to be able to supply more, but the plant
" (of which but one has been imported alive) is still excessively rare
" and propagated but slowly."

These two plants were taken out by Mr. Henry Gayen from Southampton on May 10. The India Office wrote to Kew December 9th following, stating that "the two plants had perished after their arrival in India."

On March 28, 1870, Dr. Anderson, who had in the meantime come to England, reported to the India Office: "The plants have thriven at
" Calcutta and at the lowest levels of the cinchona plantations in
" Sikkim, and also at Ootacamund. There were 20 plants at Calcutta
" and Darjeeling last November, all the produce of one plant I re-
" ceived in 1866, and 13 at Ootacamund on the 9th of November last,
" the produce of three plants obtained by Mr. McIvor from Kew in
" 1866–67. These four original plants are the only ones from which
" cuttings have been made in India, all others having perished on the
" voyage, or soon after reaching the country."

Acting on instructions from the Government of India, Dr. Anderson stated that he "determined to obtain as many plants of *Cephaelis*

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* It is impossible now to ascertain the exact history of this plant, but it is believed that it was part of a direct importation from Brazil.

" *Ipecacuanha* as possible from botanical and private gardens in " Britain and Europe." He continues : " I communicated first with " Dr. Balfour, Professor of Botany in the University of Edinburgh, " and both he and Mr. McNab, the Curator of the Botanical Gardens " there, promised to propagate as many cuttings of ipecacuanha for " transmission to India as could be safely taken from the two old " plants in the Edinburgh garden. It was when examining these old " plants, in order that the best method of propagating might be " determined on, that it occurred to Mr. McNab that the numerous " root-like tubers might be taken advantage of as a means of rapidly " increasing the plants. I saw the first crop of these rhizomes taken " off without causing the slightest injury to the plant, and before I " left Edinburgh I had the satisfaction of seeing that many of these " rhizomes had struck root, and sent up a strong shoot. I heard " lately that a considerable number of young plants had been obtained " in the Edinburgh Botanical Gardens by means of this root division, " and that many more would be procured as the roots are reproduced, " all of which are intended for India. I may mention that the two " old plants of *Cephaelis Ipecacuanha* have been many years in Edin- " burgh, and they are by far the largest and finest I have seen. In " addition to these young plants promised by Dr. Balfour from the " Edinburgh Botanical Gardens, I procured from Messrs. Lawson and " Sons, of Edinburgh, four large plants of *Cephaelis Ipecacuanha*, " which I have left in their charge for propagation. * * * There " are seven young plants of *Cephaelis Ipecacuanha* in the Royal " Gardens, Kew, and the greater proportion of these and all the " cuttings that can be obtained from them will be available for " transmission to India, along with the stock I may obtain from other " sources. I have also procured another large plant of Ipecacuanha " in London, from which cuttings will be made, both of the roots " and stems, during the remainder of my leave in England. I have " heard of a few more large plants in nurseries and private gardens, " some of which I shall be able to purchase or obtain in exchange for " seeds or plants from the Calcutta Botanic Gardens. Cuttings will " be got from these in private gardens and will be rooted and grown " in Kew.

" I estimate that I shall be able to take out in January, 1871, not " less than 50 plants of the true ipecacuanha, all of which will have " been obtained in Europe, principally in exchange for rare plants and " seeds from the Botanical Gardens, Calcutta."

Dr. Anderson was, unfortunately, never able to carry out his plans. He suffered from severe illness and died before his return to India. He was succeeded in the charge of the Royal Botanic Garden, Calcutta, by Dr. King, the present superintendent, who reported May 14, 1872, to the Government of Bengal :—

" At the beginning of the year (1871) the total stock of ipecacuanha " amounted to five plants in Sikkim and seven in this garden. These " represented the only surviving offspring of a single plant received " from Dr. Hooker in 1866. The five plants in Sikkim were early in " the present year submitted by Messrs. Gammie, Biermann, and " Jaffrey, of the cinchona plantation, to a most successful experiment " in artificial propagation, by which about 400 cuttings were obtained, " the greater proportion of which have formed good roots, and are now " fine healthy little plants. * * * Five Wardian cases containing " about 100 plants were received from Dr. Balfour, of the Royal " Botanical Garden, and three cases from Messrs. Lawson. In

" accordance with the orders of the Government of India, based on " the results of the experience of the late Dr. Anderson, these plants " were forwarded to Sikkim as soon as practicable after their arrival " here. The Calcutta climate having proved totally unsuitable to this " plant, all attempts to propagate it in this garden have been abandoned, " and the cultivation of ipecacuanha has been accepted like that of " cinchona as an experiment which must form an outlying charge. The " plants are at present under the immediate care of the European " gardeners of the cinchona plantation, and propagation is being carried " on chiefly in one of the hot, deep valleys on the outer slopes of the " Sikkim Himalaya, which open towards the terai. * * * Hitherto " the plant has not perfected seed in this country, although flowers " have frequently been produced; we must therefore look to increase " by cuttings and other artificial methods."

From the report of Dr. George Henderson, officiating Superintendent of the Royal Botanical Gardens, Calcutta, to the Government of Bengal, May 31, 1873, it appears that the number of plants from Edinburgh which reached Rungbee alive up to the end of March, 1872, were 258. In 1872 and 1873 122 other plants were received, making a total of 380. Besides these Dr. Anderson took out to India in December, 1873, 128 plants from Kew and Calcutta. In the summer of 1871 he reported : " We partially stripped the plants of their roots, which we cut " into very small pieces and treated as ordinary cuttings. By this " method our stock of plants and cuttings was increased to about 300 " by the end of August, 1871." By a continuation of the method the total number of plants on the 1st of January 1873 was 3,066, and on March 31 6,719 in Sikkim and 500 in Culcutta.

On April 28, 1874, Dr. King reported that this amount had increased to 63,423. He states : " The cultivation has been practically confined " to Sikkim, where it has been conducted chiefly by Mr. Jaffrey of the " cinchona establishment, to whom is largely due the credit of its " success. * * * Until the mode of propagating this plant by " root and leaf cuttings was discovered progress was extremely slow. " Since this discovery it has been proportionately rapid. * * * " Mr. Gammie, the resident manager of the cinchona plantation, and I " quite agree that the ipecacuanha cannot be successfully cultivated in " Sikkim except in shady places. In open spots where it gets the full " sun it soon becomes sickly. It is essentially a tropical plant and " evidently prefers moist, shady spots where there is much vegetable " mould in the soil, and an equable steamy atmosphere. * * * " A few plants had been sent during the year to the Khasi Hills, " and 100 are about to be despatched to the Madras Government for " trial in the garden at Barliar, a low-lying, moist spot in one of the " valleys of the Nilgiris."

June 4, 1875, Dr. King reports ; " The propagation of the plant by " root-cuttings is now thoroughly understood, and there are in the hot- " beds, under Mr. Jaffrey's care, at Rungbee more than 100,000 young " plants, while two years ago there were less than 7,000."

On June 7th, 1876, Dr. King further reported to the Government of Bengal: " During the year I supplied a quantity of the drug itself " (the dried root) to the Surgeon-General for trial in hospital practice. " This was carefully administered in cases of dysentery by Dr. Crombie, " late officiating physician to the Medical College Hospital, and was " pronounced by him to be quite as efficient as the best South American " drug." On July 10th, 1878; " A number of plants have been sent " to the Botanical Garden at Singapore, which enjoys a climate that

" ought to suit ipecacuanha perfectly. * * * We have been per-
" fectly successful in propagating the plant from root-cuttings and seed,
" and it grows luxuriantly under cover. But out of doors the low night
" temperature of the cold weather proves too severe for it. During the
" year 26 pounds of the dried root, taken from plants grown in frames,
" under Mr. Jaffrey's care at Rungbee, were sent to the medical depôt
" for use, previous trials having established the excellence of the
" Sikkim-grown drug." Again, July 10th, 1879: "I have been
" obliged to give up all hope of the profitable cultivation of the drug
" in Northern India, the climate being unsuitable."

Here its official history in this part of India closes. But the following extract from a letter addressed to Kew by Mr. Gammie, the resident manager of the Government Cinchona Plantations at Darjeeling, November 11th, 1886, illustrates in a striking way the varied fortune which attends the attempt to introduce a plant to new physical conditions in a part of the world distant from its original home, and the impossibility of absolutely forecasting the event of the experiment even under the most discouraging circumstances :—

"I do not think I ever told you the final results from our ipecacuanha
" growing experiments, but do so now.

" Our original stock of plants came from Kew and Edinburgh; the
" great majority from Edinburgh. The few plants from Kew differed
" a good deal in appearance from the Edinburgh lot, which again
" differed greatly from each other. All the Kew plants were of one
" sort, which we named from the start the Kew variety. It was
" rougher in the leaf than the Edinburgh sorts, and not so strong
" growing while under glass.

" After we had satisfied ourselves that we could make nothing of
" ipecacuanha from a commercial point of view, we put all the plants
" out in the open, under shade, and let them take their chance. By
" this time we had all the sorts mixed up together, and as we had,
" originally at least, ten Edinburgh plants for each one of the Kew
" sort, and the Edinburgh lot had, besides, been much the stronger
" growers under glass, the Kew plants formed less than five per cent.
" of the whole. But very soon the Edinburgh sorts began to dis-
" appear, until, in the course of a year or two, there was not a single
" plant of one of the Edinburgh varieties alive, whilst almost every
" plant of the Kew variety lived. Of it, at the present moment, we
" have a good stock, and in one place, at 1,400 feet elevation, under
" the shade of living trees, we have plants which were put out many
" years ago in the most perfect health, but, unfortunately, their growth
" has been so slow as to render the prospect of any profitable return
" from them almost hopeless. Still it strikes me that in places geo-
" graphically better situated for ipecacuanha growing than Sikkim,
" that this particular variety may succeed although other sorts may
" have failed. Probably our ipecacuanha experiments may prove
" another instance of the folly of giving up the cultivation of new
" crops as hopeless until the most exhaustive experiments have been
" carried out. It may be that there are even hardier varieties of
" ipecacuanha than the 'Kew variety' to be found."

Dr. King's prediction in 1878, that the climate of Singapore would be found well adapted to ipecacuanha, has been abundantly verified, as will be seen from Mr. Cantley's report on the Forest Department of the Straits Settlements for 1886, dated July 4, 1887, p. 20 :—

" Ipecacuanha (*Cephaelis Ipecacuanha*), a native of Brazil, and a
" plant which has been found generally very difficult to cultivate, seems

" to grow in the Straits with all the luxuriance of its native country " when a proper situation is hit upon. It enjoys a very moist, still " atmosphere, and somewhat dense shade. In the Straits it forms a " compact little bush of about 18 inches in height and is very orna- " mental when well in flower. I lately visited a plantation of the plant " in Johore, and saw thousands of plants in excellent health. They " were protected from the sun by palm leaves laid side by side on " artificial supports about 6 feet in height; hedges of the same material " were put down a few yards apart. Soil, chocolate colour, rich in " vegetable matter, wood ashes, &c."

There can be little doubt that Johore was the source of the consignment of ipecacuanha which found its way into the London market at the latter end of 1887. This was the first commercial sample of the drug produced in the old world. It was at first supposed to be of Indian origin, and a report upon its examination is given by Mr. Francis Ransom in the Journal of the Pharmaceutical Society for November 12th, 1887, p. 400. He found 1·7 per cent. of emetine in the root, the average strength of the Brazilian drug being 1·66 per cent. He concludes, therefore, that " the Indian [so-called] cultivated ipecacuanha is " quite equal to the average Brazilian root."

Nothing is known of the history of the plant grown in the Johore plantation. It is, however, probable that they were derived from Sikkim, though four plants were sent from Kew to Singapore in 1875.

XLI.—BRAZILIAN GUM ARABIC.

The following correspondence has passed between this establishment and the Foreign Office on the subject of Brazilian gum arabic :—

ROYAL GARDENS, KEW, to FOREIGN OFFICE.

SIR, Royal Gardens, Kew, February 6, 1888.

I AM desired by Mr. Thiselton Dyer to inform you that owing to the interruption of commerce in the Soudan the price of "gum arabic" has risen so considerably that efforts are being made to obtain gum of a similar character from other countries.

2. Recently about 537 packages of gum, weighing about 50 tons, have arrived in this country from Pará. Samples of this gum have been presented to the museums of the Royal Gardens by Messrs. Brookes and Green, Mincing Lane, E.C.

3. As the botanical origin of this gum is unknown Mr. Thiselton Dyer would be glad if the Secretary of State would approve of the co-operation of Her Majesty's Consul at Pará being sought to obtain for Kew dried specimens of the leaves, flowers, and fruit of the tree or trees from which the gum is obtained.

4. It would be useful also to receive any information the Consul may be able to gather as regards collecting the gum locally and the expenses which are incurred up to the time the gum is shipped at Pará.

I have, &c.

Sir Thos. Villiers Lister, K.C.M.G. (Signed) D. MORRIS.

CONSUL KANTHACK, PARÁ, to ROYAL GARDENS, KEW.

SIR, British Consulate, Pará, April 3, 1888.

I HAVE the honour to acknowledge the receipt of your letter of the 8th of February and a copy of your Despatch dated the 6th of February last past to Her Majesty's Principal Secretary of State for Foreign Affairs, and in reply I have the honour to inform you that the gum in question is not a produce of this district, but is found in considerable quantity in the province of Piauhy, whence it is shipped at the port of Parnahyba in transit to this port for transhipment to England.

The gum which has thus appeared here consists of two different kinds. One is obtained from a tree called *Jatuba* [according to Burchell this is probably *Hymenæa Courbaril*, L.], and is of a whitish and pale yellowish colour, and in appearance like gum arabic. From what I understand it oozes out from the root or lower portion of the trunk, and is said to dissolve by heat. The other kind is from a tree called *Angico* [probably *Acacia Angico*, Mart.], and is a gum of reddish colour, oozing out by cutting the bark. This gum dissolves in water, and is considered a substitute for gum arabic.

I shall endeavour to obtain from Parnahyba specimens of leaves and flowers of these two kinds of gum, and shall be glad to forward them to you with all further information I may procure.

I have, &c.

D. Morris, Esq., Assistant Director. (Signed) E. KANTHACK, Consul.

We have identified the plant known under the native name of Jatuba from Burchell as probably *Hymenæa*, and there is little doubt from the character of the gum that it is *H. Courbaril*, L., the Locust tree of the West Indies and the Simiri of Guiana. The gum of this tree partakes more of the nature of a gum-resin than of gum arabic; it is closely allied to gum Anime, and is used as a copal for varnishes. It is insoluble in water but soluble in alcohol with heat. It is extremely doubtful whether this was represented at all in the Brazilian gum arabic lately received in this country. The plant known under the native name of Angico is doubtless *Acacia Angico*, Mart. This is known to yield a soluble gum similar to gum arabic. Until botanical specimens are received at Kew, and the question authoritatively determined, we may assume that the bulk of Brazilian gum arabic is yielded by this latter species.

XLII.—TRINIDAD COFFEE.

The staple industries of Trinidad are sugar and cacao. The annual export of these two products are sugar, 700,000*l.*; cacao, 400,000*l.* Hitherto the cultivation of coffee has not assumed large proportions. Efforts were made by Mr. Prestoe in the years 1875–8 to draw attention to the desirability of cultivating coffee in Trinidad, and plants of Arabian and Liberian coffee were experimentally grown in the Botanic Gardens and distributed amongst cultivators. "Notes "on Coffee Cultivation in Trinidad" were published in the "Trinidad Royal Gazette" of 29th May and 28th August 1878. In these notes it was stated that, "the success which has attended a further extension of "coffee planting in the Botanic Gardens is an important evidence of "the reward that awaits extensive and high-class coffee cultivation in "this island." He further stated that "no more favourable con-"ditions for coffee planting could be desired than exists in the valleys

" of the northern portion of the Island, east of the Maraval Valley. " In the upper part of St. Ann's Valley there are extensive plots of " coffee trees, which for vigour and fruitfulness are simply perfection."

Owing probably to recurring periods of drought and to the absence of suitable shade trees, coffee cultivation has not prospered in the lowlands of Trinidad. In other localities, and especially at a higher elevation, complete success would, no doubt, be attained.

In the report on the samples of Trinidad coffee contributed to the late Colonial and Indian Exhibition, it is stated that " they were of a " kind which would be very useful if picked with greater care, and " quite free from black, broken, and defective beans. They were worth " in their present state 53*s.* to 55*s.* per cwt., but might easily be made to " realise 5*s.* to 6*s.* more by careful picking and preparation . . . . . " It is doubtful if the Trinidad planters know how to remove the pulp " quickly and well after picking, and if they clean their parchment " well."

Mr. J. H. Hart, the recently appointed Superintendent of the Botanic Gardens at Trinidad, has turned his attention to the possibility of establishing a coffee industry in the island. In a letter addressed to Kew, dated 3rd March 1888, he mentions: "I send you three samples " of coffee grown here called respectively Creole, Hybrid Mocha, and " Mocha coffee. I am very desirous of obtaining the market value of these " samples, as I believe with proper appliances the coffee grown here " could be increased in market value at least 25 per cent. The samples " have been cleaned and prepared by fermentation."

In reply to this request the following letter with enclosures was addressed to the Colonial Office: —

SIR, Royal Gardens, Kew, April 11, 1888.

I AM desired by Mr. Thiselton Dyer to inform you that he lately received from the Superintendent of the Botanical Gardens, Trinidad, samples of coffee which had been prepared by him experimentally for the purpose of testing the merits of Trinidad coffee.

2. It appears that coffee cultivation at Trinidad has not so far proved a successful industry. The planters who have hitherto tried the cultivation have not been able to cure the produce in such a manner as to obtain remunerative prices.

3. Mr. Hart who takes an intelligent interest in local industries has very properly sought to improve the quality of Trinidad coffee by curing it according to the method so well pursued in regard to the Blue Mountain coffee of Jamaica.

4. The result of Mr. Hart's experiment according to the reports of the brokers enclosed herewith has improved the value of Trinidad coffee by about 25 per cent.

5. Mr. Thiselton Dyer is of opinion that the report of the brokers, as also the letter of Messrs. Shand and Haldane, will prove of interest to Sir William Robinson, to whom they might be communicated for the purpose of drawing attention to coffee growing as a possible means of extending the industries of the colony.

I have, &c.

Edward Wingfield, Esq., (Signed) D. MORRIS.
Colonial Office.

[Enclosures.]

MESSRS. SHAND AND HALDANE to ROYAL GARDENS, KEW.

SIR, 24, Rood Lane, E.C., April 7, 1888.

WE received your favour of 22nd ultimo, and we now have pleasure in enclosing report and valuation made by Messrs. Wilson

Smithett & Co., 41, Mincing Lane, of the samples of Trinidad coffee sent by you to us. A few words as to the system of coffee preparation generally adopted in Ceylon upon the estates may perhaps be of interest.

The coffee cherries are allowed to get fully ripe upon the trees, and care is taken in picking to avoid green and partially ripe cherries. The cherries are passed through machinery generally as soon as they are brought into the measuring loft from the field, though some planters prefer keeping them for a night in the loft before pulping, and believe thereby a better colour is obtained for the bean when it reaches market, though the parchment skin may not look so clean. In the operation of pulping the beans are squeezed out of the outer skin commonly called the pulp by passage through discs or cylinders and fall into cisterns, from which the water that carries them in is drained off, and they are then heaped up and left to ferment until such time as the mucilage with which the bean is covered can be washed off, a period varying according to temperature from 24 to 48 hours. When the coffee, now termed the parchment, is ready to wash water is run into the cisterns, and it is kept moving with batons until all the glutinous matter is removed; it is then put on mats or an asphalte or cement drying ground and left in the sun to dry, and after two or three days' exposure it is ready to be sent to the mills in Colombo in bags.

A few estates in Ceylon, but very few if any now, prepare their coffee for market by peeling and sizing upon the estates, but the strong sun and heavy machinery required enable these operations to be carried out better in Colombo. The planter has to be careful to pick ripe berries, and ripe berries only, to see that his cylinders or discs are so set that the beans do not get pinched or bruised in passing through them and that the skin is separated from the parchment, not to allow his parchment to ferment too long, as though thereby the outer or parchment skin may become whiter and better bleached the bean loses the colour which the trade likes. The various operations of peeling, garbling, and sizing to be properly done require heavy machinery and ample room.

Full particulars as to coffee preparation upon plantations will be found in *Sub-tropical Cultivations* by R. C. Haldane, *Blackwood*, 1886.

We remain, &c.

(Signed) Shand, Haldane & Co.

D. Morris, Esq.

Dear Sirs, 41, Mincing Lane, E.C., March 27, 1888.

We have examined the samples of Trinidad coffee described as under experimental cultivation at Trinidad, and report as follows:—

Hybrid Mocha, of good liquor and flavour, the shape of the berry approximating to long-berry Mocha - - - - -	85*s.* per cwt.
Mocha, of indifferent liquor, but fair flavour, very small berry, similar to small East India	72*s.* „
Creole, fair liquor, ordinary flavour, similar to Central American - - - - -	60*s.* „

All the samples roast evenly, showing that the berry is well prepared and ripened.

Yours faithfully,

(Signed) Wilson, Smithett & Co.

Messrs. Shand, Haldane & Co.

ROYAL GARDENS, KEW, to COLONIAL OFFICE.

SIR, Royal Gardens, Kew, April 23, 1888.

IN continuation of my letter of the 11th instant I am desired by Mr. Thiselton Dyer to forward to you, for the information of the Government of Trinidad, the enclosed copy of a letter received from Messrs. Lewis and Peat, of Mincing Lane, on the subject of cleaning "parchment coffee."

2. It would appear from this letter that an entirely new aspect has been given to the preparation of coffee for the English market by the establishment in London of a factory to clean parchment coffee in a cheap and expeditious manner.

3. It is proposed to treat this subject as regards its bearing upon West Indian coffee in the *Kew Bulletin* for the month of May next. Owing to the falling off of coffee production in the East Indies to the extent, it is said, of a million and a quarter cwts. annually, coffee cultivation in the West Indies should be largely augmented. The difficulties hitherto encountered by small settlers in the preparation of coffee are likely to be entirely overcome by the cleaning of parchment coffee in London, and this fact, in the opinion of Mr. Thiselton Dyer, cannot be too widely known in every West Indian Island.

I am, &c.

Edward Wingfield, Esq., (Signed) D. MORRIS.
Colonial Office, S.W.

[Enclosure.]

MESSRS. LEWIS AND PEAT to ROYAL GARDENS, KEW.

SIR, 6, Mincing Lane, E.C., April 17, 1888.

IN reply to your favour of the 16th instant we beg to inform you that the system of importing coffee in the parchment is largely on the increase, and some most satisfactory results have been attained.

We have recently sold large parcels from America which were "milled" here, and against 70*s.* per cwt. obtained last year for the same coffee cleaned on the plantation we obtained 86*s.* per cwt., although prices all round were lower. Experience shows that the husk or parchment protects the bean from atmospheric influences which affect the colour, and in every instance where trials have been made the result has been in favour of cleaning here. The process is quite simple, and the cost is 2*s.* 6*d.* per cwt., including everything. The coffee must be pulped and the cherry got rid of on the plantation, but the most important matter is the drying. It is absolutely necessary that the parchment must be perfectly dried and kept from moisture afterwards, insufficient drying is most damaging to after results, and must have the greatest care.

There is no advantage in selling the coffee in parchment as much better prices are obtained by cleaning it here. The grower is more than compensated for extra freight paid, loss in weight, &c., by the extra good out-turn of his coffee if properly cleaned here. Any further information we can furnish we shall be most happy to give you. We enclose a sample of parchment which is worth 35*s.* per cwt. in parchment, and when cleaned 80*s.* per cwt. The probable loss in weight is about 15 or 16 per cent. There would always be a market for coffee cleaned here, and as much as the West Indian Islands could produce would easily find a market.

We remain, &c.

(Signed) LEWIS & PEAT.

D. Morris, Esq.

COLONIAL OFFICE to ROYAL GARDENS, KEW.

SIR, Colonial Office, April 28, 1888.

IN reply to your letter of the 23rd instant, enclosing a copy of one from Messrs. Lewis and Peat, of Mincing Lane, on the subject of the cleaning of "parchment" coffee, I am directed by Lord Knutsford to acquaint you that a copy of it will be sent for publication to the Governors of the West Indian and other Colonies interested in the production of coffee.

I am, &c.
(Signed) EDWARD WINGFIELD.

The Director, Royal Gardens, Kew.

XLIII.—PATCHOULI.

(*Pogostemon Patchouli*, var. *suavis*.)

In the *Kew Bulletin*, No. 15, for March, 1888, page 71, an account was given of the patchouli plant used in perfumery. To this account was added some interesting notes respecting patchouli cultivated at Penang, under the charge of Mr. C. Curtis, Assistant Superintendent in the Forest Department. We are now enabled to supplement these notes by the interesting information contained in the following letter, recently received from Mr. Curtis :—

SIR, Penang, February 16, 1888.

I BEG to thank you for the determinations of Penang plants (1,140–1,201), and also for your kind letter of 16th December. Referring to your remarks on patchouli, it may interest you to know the result of an experiment in cultivating and harvesting one-twentieth of an acre of patchouli in the Experimental Nursery, Penang. Cuttings were put in in January, and the last week in February one-twentieth of an acre was planted three feet apart. The soil of the nursery is poor, and the only manure used was wood-ashes.

On July the 21st the whole was cut, and weighed in a green state 449 lbs. After being dried in a cool airy shed for 10 days the weight was 106 lbs. The leaves were then separated from the stems and each weighed separately, the result being, "good leaf," 69 lbs.; refuse, 37 lbs. Samples were submitted to two London brokers, both of whom said that the sample was good. One valued it at 8*d*. to 10*d*. per lb., and the other at 10*d*. to 11*d*.

The same patch was cut again the first week in January of this year, and the yield and results were approximately the same as in July; so that there is no doubt an acre of patchouli will yield considerably over one ton of "good leaf" per annum.

If there is a steady demand nothing better can be planted by native cultivators, as no special skill is required in its cultivation, or machinery of any kind in its preparation. That the system of cutting the whole patch at once is the best system possible I am by no means sure. I think if only one side of the rows were cut at first, and the remainder after that had commenced to grow again, there would be less exposure of the roots to the sun, and consequently less check to the growth.

The principal point to be observed in drying is to dry slowly and not to the point of crispness, otherwise the leaves get broken to powder and are of less value.

I mentioned some time ago, when sending a sample to Kew, that the leaves of the *Urena lobata* are used for adulteration.

Can you inform me whether patchouli is used for any other purpose than for perfumery ?

I remain, &c.

D. Morris, Esq. (Signed) C. Curtis.

XLIV.—COCHIN CHINA VINE.

(*Vitis Martini*, Planch.)

An apparently new species of vine has been received at Kew from the Botanic Gardens, Hong Kong. It was sent by Mr. Ford as *Vitis Martini*, Planch. From botanical specimens also contributed by Mr. Ford to the Kew Herbarium Professor Oliver has identified the plant as *Vitis* (*Ampelocissus*) *Martini* of Planchon, but he is doubtful whether it is specifically distinct from *Vitis barbata*, Wall., of Bengal and Burma. As plants of this vine have been distributed from Kew to correspondents in the Colonies it is desirable to place on record all the available information respecting it. In the report of the Superintendent of the Botanical and Afforestation Department, Hong Kong, for the year 1885, the following interesting account is given of the Cochin China vine :—

"Another plant of considerable interest is a new tuberous-rooted " vine, *Vitis Martini*, Planch., from Cochin China. It fruited this " year in Hong Kong for the first time. The seeds were procured " from the Botanic Gardens, Saigon, in 1883. The seedlings were " planted out the same summer and made several shoots, each of which " died down in the winter. They began to make fresh shoots about " the middle of April, 1884, and grew well during the summer, but " showed no inclination to flower ; and again died down in the winter. " Last summer they started vigorously and showed flower about " the end of May. Many of the bunches, however, failed to develop " fruit, owing, apparently, to imperfect fertilization ; but there was a " good average crop of bunches on the canes irrespective of the failures. " The fruit was ripe in October, many of the bunches weighing a " pound each. The berries, when ripe, are jet black, and rather under " the average size of ordinary grapes. The seeds are large in proportion to the size of the berry. The flavour is a peculiar blending of " sweetness and acidity, very pleasant, but tending, in my case, to leave " a curious smarting sensation on the tongue ; others might not find " this peculiarity at all objectionable. The flavour might be altered, as " is well known, by varying the mode of cultivation ; but the size of " the seeds is likely to prevent the grape becoming popular as a table " fruit ; it may, however, be very well adapted for a wine producer. " A number of seedlings of this vine were distributed amongst residents " of the Colony, but I learn that none of these plants have fruited. A " few remarks as to the mode of cultivation may therefore be useful. " The tubers should be planted at a distance of 12 feet apart in well " manured soil, taking care to keep the manure near the surface as the " tubers take a horizontal direction, and do not penetrate the soil to " any great depth. When the shoots appear in the spring it is well to " cut off all the weak ones, leaving only four strong canes ; these " should be trained along a trellis or wall, as the case might be, leaving " a width of 3 feet between the canes. All the lateral branches should " be pruned back to within one bud of the main rod, except those

" laterals that show bunches; but it will be found that very few " bunches will be developed on the lateral shoots, most of the bunches " springing directly from the main rods; but in the case of a bunch " springing from a lateral branch the branch should be stopped at the " second bud above the bunch. The laterals might be allowed to grow " till they are 2 feet long. It will then be seen if they are likely " to throw out bunches or not. If not, prune them back as described, " and also pinch back all subsequent growth as it appears. It may " be found necessary to thin out the leaves to allow the sun to get at " the branches, but in doing this great care should be taken not to " break or otherwise injure the leaf directly above the bunch. If this " happen to be accidentally removed the bunch below it will ripen " immaturely and soon shrivel up. It is an advantage to thin out the " bunches, leaving a space of 15 or 18 inches between them. It " is also advantageous to thin the berries, leaving hardly one half of the " original quantity on each bunch; but I am afraid this process would " prove impracticable if the vine were extensively grown, owing to the " labour it would entail. After the fruit is gathered the vines require " no farther attention till spring. By way of experiment one lot of " plants were allowed to grow at will. Some of them threw up as " many as a dozen suckers and produced laterals in profusion, but they " all failed to flower. Another lot was transplanted into well-manured " ground just as the crowns began to push in the spring; they, too, " failed to flower, and presented rather a sickly appearance during the " summer.

" The 'Horticultural Press' has already suggested that this vine " should receive the attention of vine growers in the wine-producing " countries of Europe where the phylloxera has denuded the vineyards " of the old class of vines. There being no phylloxera in Hong Kong, " I cannot say whether the dreaded insect would spare this vine, but in " view of the wonderful improvements that have been and can be " brought about by skilful and persistent cultivation, it is not un- " reasonable to surmise that this new vine may ultimately become a " wine producer. It is easily cultivated, and seems to be well adapted " for a tropical climate, or a climate in which the resting season is " comparatively cold and the growing season hot."

XLV.—MADAGASCAR EBONY.

The information contained in the following correspondence respecting ebony and sandal-wood at Madagascar will be read with considerable interest. In the absence of botanical specimens of the plants in question it is impossible to express an opinion as to their identification. The flora of the lowlands of Madagascar is very imperfectly known at present, and it is most desirable to draw the attention of Consuls and all who may have the opportunity to the importance of collecting and forwarding specimens of the plants known to yield ebony and sandal wood to Kew for the purpose of identification. Mr. J. G. Baker, Principal Assistant in the Kew Herbarium, has for many years devoted attention to the flora of the mountainous parts of Madagascar, and has described the plants, collected for the most part by the Rev. R. Baron, in recent numbers of the *Journal* of the Linnean Society. The work now necessary is to explore the lowlands of Madagascar and make collections of plants, which it is confidently anticipated will prove of the greatest possible interest.

It is well known that the heart wood of many different species of *Diospyros* constitute the ebony of commerce. There are 10 endemic species of *Diospyros* at Madagascar, but it is impossible to identify any one of these as yielding commercial ebony. Mr. Godfrey T. Saunders, who has an extensive knowledge of the hard woods of commerce, states that, "at present the only Madagascar wood "known in this country is ebony, and in this my house is the largest "operator. Hitherto we are dependent for supplies on the French "and German houses. We understand the wood at present is smuggled "out of the country. A properly organised management should put a "stop to this state of things and enable us to get the wood under the "best possible conditions as to proper felling and shipment. There is "a large and increasing consumption for this wood."

True sandal-wood is yielded by different species of *Santalum*. Indian sandal-wood is derived from *Santalum album*, L., and West Australian sandal-wood from *Fusanus spicatus*, R. Br. A "contribution to the "Knowledge of Sandal-woods" is given by Andreas Petersen in *Journal*, Pharmaceutical Society, vol. xvi. [3], p. 757.

According to Mr. Baker there is no species of *Santalum* known from Madagascar, and *Pterocarpus* which yields red sandal-wood or Saunder's wood is doubtfully native. In the northern parts of Madagascar, according to M. Cachin, a wood with properties similar to sandal-wood is known under the Sakalava name of Hasoranto, while another wood called Làza smells of aniseed. The latter is probably *Croton anisatum*, Baill. in Adansonia, Vol. I., p. 159.

In the Kew Museums there is a specimen of wood labelled "*Santal* "*vert* (Croton sp.), exported from Madagascar and Zanzibar into "India, where it is said to be used for burning the bodies of Hindoos." Also a specimen from Mr. J. Heathcote, from Professor MacOwan, received February 6, 1886, labelled "Wood like sandal-wood (Croton "sp.). It is ground and mixed with water, and used by the natives "at Inhambane to anoint themselves."

These latter are not properly sandal-woods. They are mentioned as indicating the possible source of what is called sandal-wood at Madagascar. The correspondence is as follows :—

THE FOREIGN OFFICE to ROYAL GARDENS, KEW.

SIR, Foreign Office, March 19, 1888.

IN reply to your letter of the 12th instant I am directed by the Marquess of Salisbury to transmit to you herewith an extract from Vice-Consul Knott's report, relating to the ebony trade on the West Coast of Madagascar.

I am to add that Lord Salisbury has no objection to this extract being published in the *Kew Bulletin*, and communicated to Mr. Ransome.*

I am &c.

D. Morris, Esq. (Signed) T. V. LISTER.

[Enclosure.]

British Vice-Consulate, Mojanga,

SIR, December 12, 1887.

I HAVE the honour to inform you that, up to the present time, no person having been granted a concession to export ebony from the West Coast, all that is shipped is smuggled out of the country.

* Mr. Lewis Ransome (of the firm of A. Ransome & Co., Chelsea) has been preparing himself at Kew for a botanical survey of the English concession in the district of Maroantsetra, North-east Coast of Madagascar.

In the Sakalava country, south of Manitirano, there are large tracts of forest in which the ebony tree is found and cut by the Sakalava and bought to Manitirano, and there sold to the Indian and Arab traders in exchange for cloth for merely nominal amounts. Some comes north to Soulala in Baly Bay and there exchanged.

The Indian and Arab traders send it to Mozambique and Nossi Be, and, if large and sound wood, it fetches from 40 to 55 dollars a ton.

I heard also when I was in Majumba Bay that ebony grows on the banks of Nemside Bay and is sent to Nossi Be, that there were large trees there, but I was unable to go as small-pox was raging in all the principal towns.

I myself found ebony close to Ampasimerima, about 20 miles N.E. of Mojanga, marked in Oliver's map incorrectly Pajong; it was here both small in size and quantity; from there to Ambolivozy, a village on the southern entrance of Mojamba Bay, I did not discover any, but it seemed to recommence there in small quantities, and extended along the southern bank of the bay. At Ampasamalavatra, on the bay there were large quantities of small wood and a few large trees; and at Androhibe, about 10 miles inland, I saw several fine old trees of ebony. At Amboeliana, not far from there, I cut some samples of sandal-wood, and sent same to London, and informed that its value there is from 25*l.* to 60*l.* a ton.

* * * * * * * *

From Soulala to south of Manitirano (Manitirano excepted) it is said to be unsafe for a white man to go, and impossible for a Hova. And, again, south of Morandava the same thing occurs; but in a few Sakalava villages there are creole traders' agents for McGubbin, of Liverpool.

In my opinion the only way the ebony trade can be worked on this coast is by opening stations on the rivers where the ebony grows, and employing Sakalavas and Makoas at a monthly wage with an English overseer at each station; he, of course, would have to take cotton goods, &c., as the wages are mostly paid in goods, coin being of no value to the Sakalavas. This way would, I think, ensure a regular supply of good wood being obtained, and avoid the cutting of small and useless wood.

I have, &c.
(Signed) Stratton C. Knott,
British Vice Consul.

J. G. Haggard, Esq.,
H.B.M. Consul for Madagascar.

XLVI.—SHANTUNG CABBAGE.

(*Brassica chinensis*, L.)

In a letter dated 21st April 1887, Mr. George Hughes, late Commissioner of Customs at Chefoo, China, offered the Royal Gardens seeds of a cabbage which has long been in high repute in China, but which appears to be little, if at all known, in this country. Mr. Hughes stated: "I have just received from Chefoo, North China, a small "packet of Shantung Cabbage seed, and I should like, if possible, to "introduce this delicious cabbage into England. It grows in the "north of China, is lettuce shaped, and weighs from 5 to 8 lbs. When

" boiled it is nearly as good, if not quite, as sea kale: eaten raw, in a " salad, it is of so delicate a flavour that I know of no vegetable in " England to approach it. It is an autumn cabbage, should be planted " about 18 inches apart, thrives best with moisture, and in Shantung is " well watered every day; there the seed is sown in June. When " nearly full grown it should be tied round so as to give it a good white " heart. If it can be acclimatized in this country it will be a great " addition to our vegetables."

The seeds received at Kew being few in number were carefully cultivated. They were sown in a heated pit on the 3rd May, and in about a fortnight all had germinated. They were pricked off into boxes, and when large enough transferred to pots. They were kept in a cold frame until the beginning of June, when they were planted out in beds of rich soil about 18 inches apart in the rows, and the same distance from row to row. About the middle of July the plants were tied up in the same way as Cos lettuce, and when well filled and blanched were cut for use. They were pronounced to be excellent. The seed ripened only sparingly, probably owing to the dry weather of last summer.

It is possible that this Chinese cabbage may prove a useful addition to English gardens. The kinds most highly esteemed at Pekin are those from the neighbourhood of the little town of Ngan-sun. These are said to be reserved for the table of the Emperor. They are eaten either raw in a salad or cooked and seasoned with salt.

Under suitable circumstances the cultivation of this cabbage would doubtless prove as simple and as successful as with the ordinary cabbage. Botanical specimens of Chinese cabbage were received at Kew in 1886 from Mr. F. S. A. Bourne, H.M. Consular Agent at Chungking. Under the native name of Pai-tsai he describes it " when young it is " eaten as a cabbage. It is also cultivated for its seeds, from which oil " is pressed and used for light and cooking." In the *Index Floræ Sinensis*, Part I., p. 46, by Forbes and Hemsley, *Brassica chinensis*, Linn. Amœn. Acad. IV., p. 280, is reduced under *Brassica campestris*, L. A list of Brassiaceous plants from China, with notes supplied by Mr. Bourne, is published by Mr. Hemsley in *Gardener's Chronicle*, Vol. XXVI. [New Series], 1886, p. 40.

A very complete account of the Shantung cabbage is given in *Le Potages d'un curieux histoire, culture et usages de 100 plantes comestibles peu connues ou inconnues*, par A. Paillieux et D. Bois, Paris, 1885. It is here described as Pé-tsai, or Chou de Chine (*Brassica chinensis*, L.) Further information may be obtained from the *Bulletin de la Société Centrale d'Horticulture de France:* Note sur la culture du Pé-tsai aux iles Maurice et de Bourbon, par M. Breon, Vol. XXIII., p. 142.

Mention is also made of the Chou de Schangton, or Pé-tsai, in the *Bulletin de la Société d'Acclimatation:* Productions de la Chine, par M. l'Abbé David, 2e série, t. II., p. 237. Ce mémoire contient, au sujet du Pé-tsai, ce que suit: " Comme plantes alimentaires, on trouve " dans nos jardins . . . . . le Pé-tsai, dont les Chinois consomment " une énorme quantité, et qui vaut plus que tous les autres légumes " réunis; les Européens le trouvent aussi fort bon et de meilleure " digestion que les divers Choux d'Occident."

A figure with cultural hints on Chinese Cabbage, or Pé-ts-ai, is given in the *Vegetable Garden* by MM. Vilmorin-Andrieux. London: John Murray, 1885, p. 146.